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(54) Title: WATER PUMP FOR MOTORCYCLE ENGINE

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(57) Abstract: The present invention relates to a water pump for motorcycle engine, which comprises a right crankcase cover, a water pump body, a water pump shaft, an oil seal, a water seal, an impeller and a water pump cover, wherein, the oil seal, the bearing and the water seal are fixed respectively in the axial round holes of different sections of the water pump body, the bearing and the water seal are provided on the two sides of the oil seal respectively, an O-ring is fixed in the annular groove provided on the outside of the water pump body, the water pump shaft is so mounted that it passes through the bearing, the oil seal and the water seal, the impeller is fixed to the end of the water pump shaft, the water pump body is mounted on the right crankcase cover by way of clearance fit, the radial hole on the water pump body is connected with the hole provided on the right crankcase cover, characterized in that: a water inlet passage is provided on the right crankcase cover with the water pump body fixed, and a water inlet passage is communicated with a water outlet passage provided on the water pump cover. The water pump according to the invention has small occupying space and is easy to be assembled and maintained.
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WATER PUMP FOR MOTORCYCLE ENGINE

FIELD OF THE INVENTION

The present invention relates to a water pump, especially to a water pump for motorcycle engine.

BACKGROUND OF THE INVENTION

At present, the water pump for motorcycle engine drops into two kinds: one is built-up in structure, and the other is unitary in structure. For the foregoing built-up water pump, it is characterized in that: the main parts of the pump, such as the water pump shaft, the oil seal, the bearing, the water seal and etc., are fixed directly in the inner hole of the crankcase body or the crankcase cover, while the water passage is provided on the crankcase body or the crankcase cover. The built-up water pump is compact in structure, but it is very inconvenient in assembling, disassembling and changing parts. For the foregoing unitary water pump, it is characterized in that: the main parts, such as the water pump shaft, the oil and water seals and the bearing, are fixed in the inner hole of the water pump body, and the water passage is provided on the water pump body, while the water pump body is installed in the inner hole of the crankcase body or the crankcase cover. The advantage of the unitary water pump is
that: if any part of the unitary water pump is broken, the water pump body with the oil and water seals, the bearing, and the pump shaft fixed therein can be removed and replaced with a new water pump body with the oil and water seals, the bearing, and the pump shaft fixed therein, that is to say, it is an entirely replacement, so it is convenient in assembling and maintaining of the water pump. However, since the inlet water passage is provided in the water pump body, the occupying space for the water pump is big.

SUMMARY OF THE INVENTION

The objective of the present invention is to provide a water pump for motorcycle engine, which has a compact structure and is easy to be assembled and maintained.

In order to realize the above objective, the present invention provides a water pump for motorcycle engine, which comprises a right crankcase cover, a water pump body, a water pump shaft, an oil seal, a water seal, an impeller and a water pump cover, wherein, the oil seal, the water seal, and a bearing are fixed respectively in the axial round holes of different sections of the water pump body, the bearing and the water seal are located at the two sides of the oil seal respectively, an annular groove is provided on the outside of the water pump body, and an O-ring is fixed in the annular groove, a
water pump shaft is so mounted that it passes through the bearing, the oil seal and water seals, an impeller is fixed to the end of the water pump shaft, the water pump body is mounted to the right crankcase cover by way of clearance fit, a radial hole is provided on the water pump body and is connected with a hole provided on the right crankcase cover, characterized in that: a water inlet passage is provided on the right crankcase cover with the water pump body fixed, and the water inlet passage is connected with a water outlet passage provided on the water pump cover.

According to the water pump for motorcycle engine of the present invention, the bearing, the oil seal and the water seal are fixed respectively in the inner holes of different sections of the water pump body. The water pump body, the bearing and the oil and water seals are assembled in unity, which is mounted in the inner hole of the right crankcase cover, so the water pump is easy to be assembled, disassembled and maintained. The water inlet passage is provided on the right crankcase cover rather than provided on the water pump body, so the cubage of the water pump body is decreased, resulting in the whole occupying space for the water pump decreased. In a word, the water pump for motorcycle engine of the present invention has the advantages of both the forgoing built-up and unitary water pumps.
BRIEF DESCRIPTION OF DRAWINGS

To better understand the invention, an embodiment of the present invention will be described in more detail with reference to the drawing FIG.1.

FIG 1 is the structure view of the water pump for motorcycle engine according to the present invention.

DETAILED DESCRIPTION OF INVENTION

The invention will be described in more detail by means of an embodiment with reference to the drawing FIG.1.

As shown in FIG 1, the present invention provides a water pump for motorcycle engine, which comprises a right crankcase cover 1, a water pump body 3, a water pump shaft 7, an oil seal 9, a water seal 12, an impeller 13 and a water pump cover 14, wherein, an oil seal 9, a water seal 12, and a bearing 7 are fixed respectively in the axial round holes of different sections of the water pump body 3, the bearing 7 and the water seal 12 are provided at the two sides of the oil seal 9 respectively, an O-ring 8 is fixed in the annular groove provided on the outside of the water pump body 3, a water pump shaft 6 is so mounted that it passes through the bearing 7, the oil seal 9 and the water seal 12, an impeller 13 is fixed to the end of the water pump shaft 6, the water pump body 3 is mounted on the right
crankcase cover 1 by way of clearance fit, a radial hole 16 is provided on the water pump body 3 and connected with a hole 17 provided on the right crankcase cover 1, characterized in that: a water inlet passage 2 is provided on the right crankcase cover 1 with the water pump body 3 fixed, and a water inlet passage 2 is connected with a water outlet passage 15 provided on the water pump cover 14.

As shown in FIG1, the space formed between the outside of the water seal 12 and the water pump body 3 is communicated with both the water inlet passage 2 and outlet passage 15. An O-ring 10 is provided between the step-interfaces of the right crankcase cover 1 and the water pump body 3.

When the motorcycle engine of the present invention works, the driven water pump gear 5 makes the water pump shaft 6 to turn, and then the water pump shaft 6 drives the impeller 13 to turn, resulting in water in the water inlet passage 2 taken to the water outlet passage 15 provided on the water pump cover 14, so the water is pumped.

According to the present invention, the water pump body 3 is mounted in the inner hole of the right crankcase cover 1 by way of clearance fit, the bearing 7, the oil seal 9 and the water seal 12 is fixed in the inner holes of the water pump body 3 in tight fit, and the O-ring 8 seals the oil in the engine crankcase, while the O-ring 10
seals the water both in the water inlet passage 2 and the water outlet passage 15, if any part of the water pump broken, the water pump body 3 with the oil seal 9, the bearing 7 and the water seal 12 fixed therein can be removed and replaced with a new water pump body 3 with the oil seal 9, the bearing 7 and the water seal 12 fixed therein, so the water pump is easy to be assembled and maintained; the water inlet passage 2 is provided on the right crankcase cover 1 rather than on the water pump body 3, the space for installing the water pump is decreased, so the water pump contains all the advantages of both the foregoing built-up and unitary water pumps.
Claims:

1. A water pump for motorcycle engine, comprising a right crankcase cover (1), a water pump body (3), a water pump shaft (7), an oil seal (9), a water seal (12), an impeller (13) and a water pump cover (14), wherein, an oil seal (9), a water seal (12), and a bearing (7) are fixed respectively in the axial round holes of different sections of the water pump body (3), the bearing (7) and the water seal (12) are provided at the two sides of the oil seal (9) respectively, an O-ring (8) is fixed in the annular groove provided on the outside of the water pump body (3), a water pump shaft (6) is so mounted that it passes through the bearing (7), the oil seal (9) and the water seal (12), an impeller (13) is fixed to the end of the water pump shaft (6), the water pump body (3) is mounted on the right crankcase cover (1) by way of clearance fit, a radial hole (16) is provided on the water pump body (3) and connected with a hole (17) provided on the right crankcase cover (1), characterized in that: a water inlet passage (2) is provided on the right crankcase cover (1) with the water pump body (3) fixed, and a water inlet passage (2) is connected with a water outlet passage (15) provided on the water pump cover (14).

2. The water pump for motorcycle engine according to claim 1, characterized in that: the space formed between the outside of the
water seal (12) and the water pump body (3) is communicated with the water inlet passage (2) and the water outlet passage (15).

3. The water pump for motorcycle engine according to claim 1, characterized in that: an O-ring (10) is provided on the step-interfaces of the right crankcase cover (1) and the water pump body (3).
Fig. 1
INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2004/000184

A. CLASSIFICATION OF SUBJECT MATTER

IPC F01P5/10,F04D13/02,F04D29/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC F01P5/10,5/12,5/00,3/12,3/00,7/14,7/00;F04D13/02,13/00,29/4029/44,29/00;F02B63/06,63/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched


Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT WPI EPDOC PAI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>CN,Y2463219 (CHONGQING LIFANHONGDA INDUSTRY(GROUP) CO, LTD) 05 Dec 2001 (05.12.2001), See page 1 line 21 to page 2 line 14, figure 2</td>
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Date of the actual completion of the international search

03.Aug.2004

Date of mailing of the international search report

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